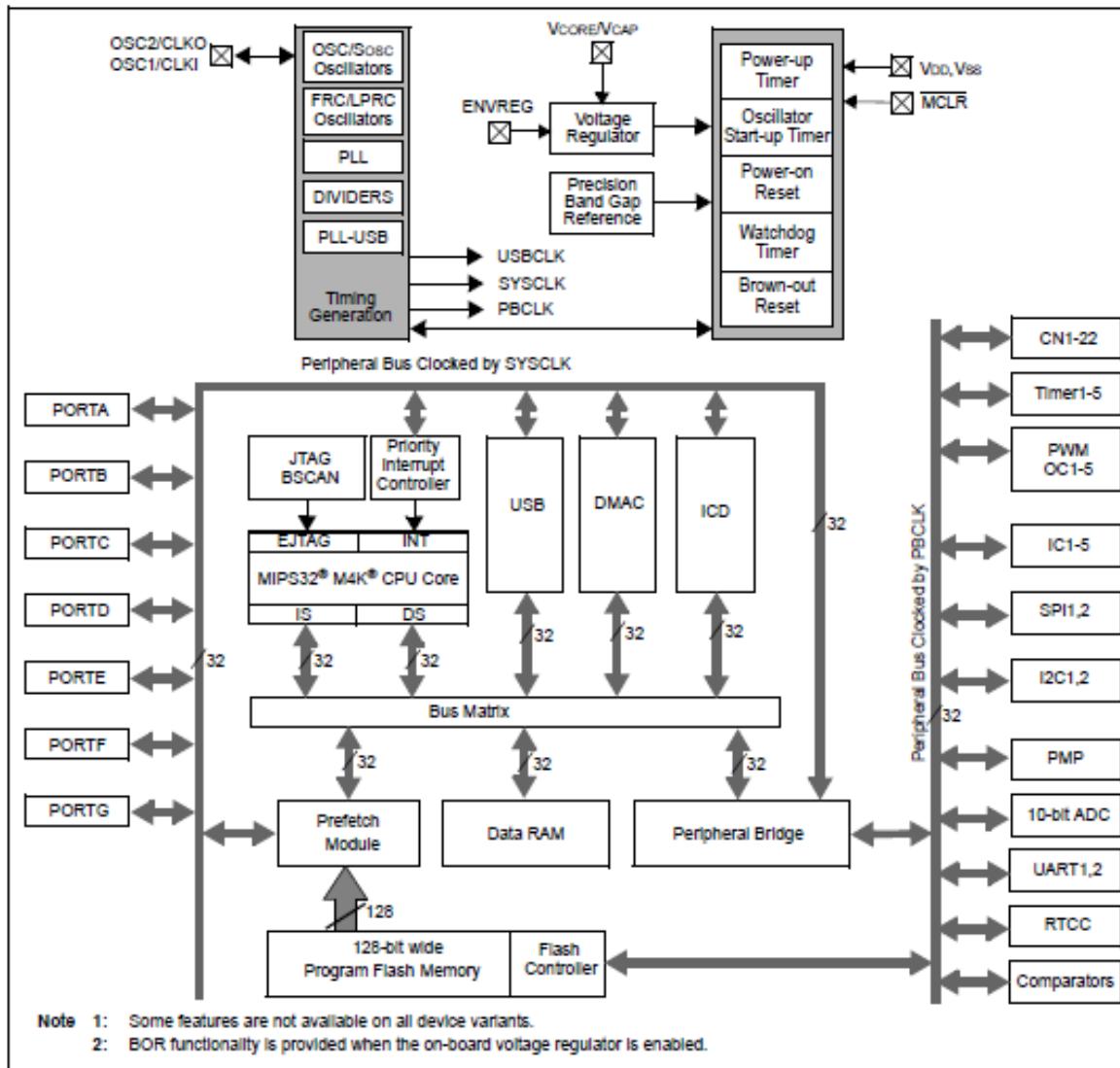


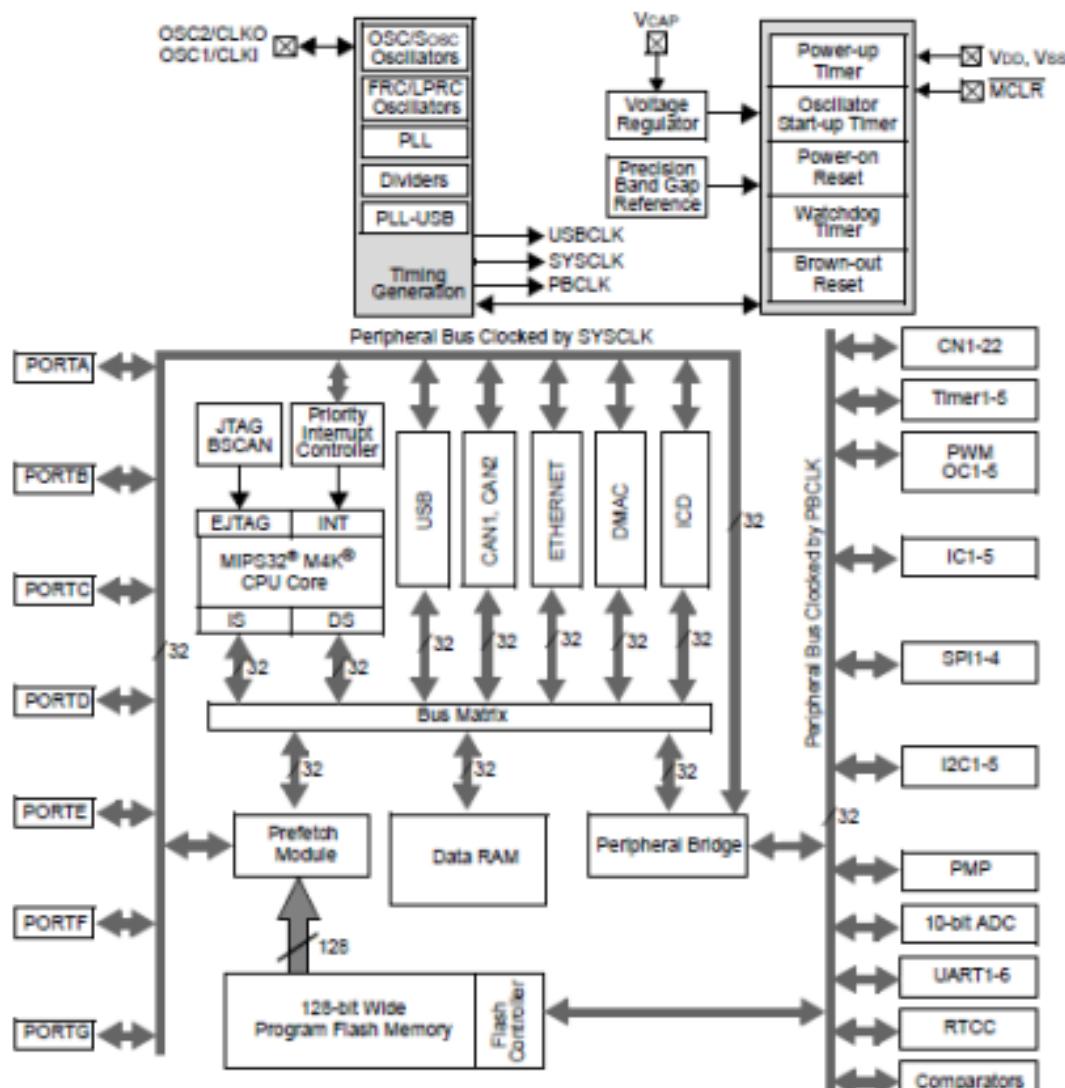
# Memory & Machine Code

**Dr. Edward Nava**  
**[ejnava@unm.edu](mailto:ejnava@unm.edu)**

# PIC32MX460 Architecture



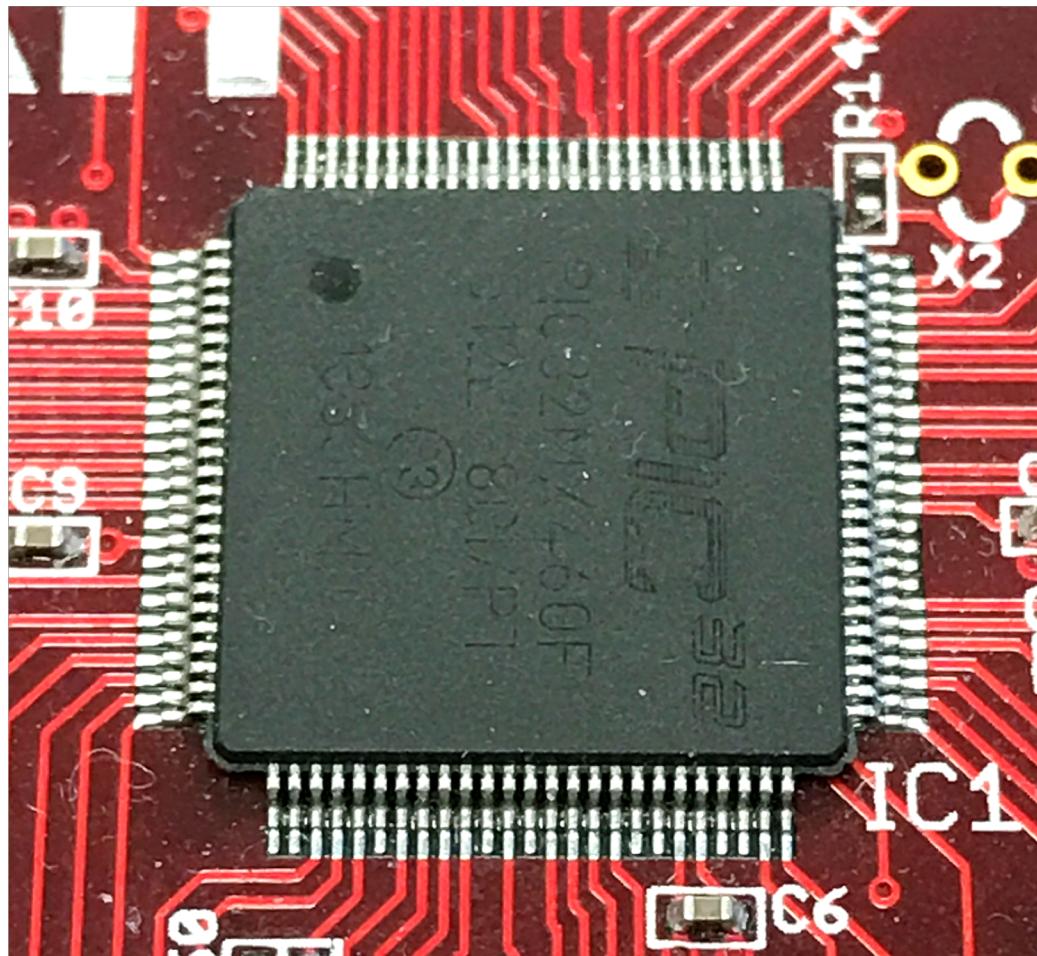
# PIC32MX795 Architecture



Note 1: Some features are not available on all devices.

2: BOR functionality is provided when the on-board voltage regulator is enabled.

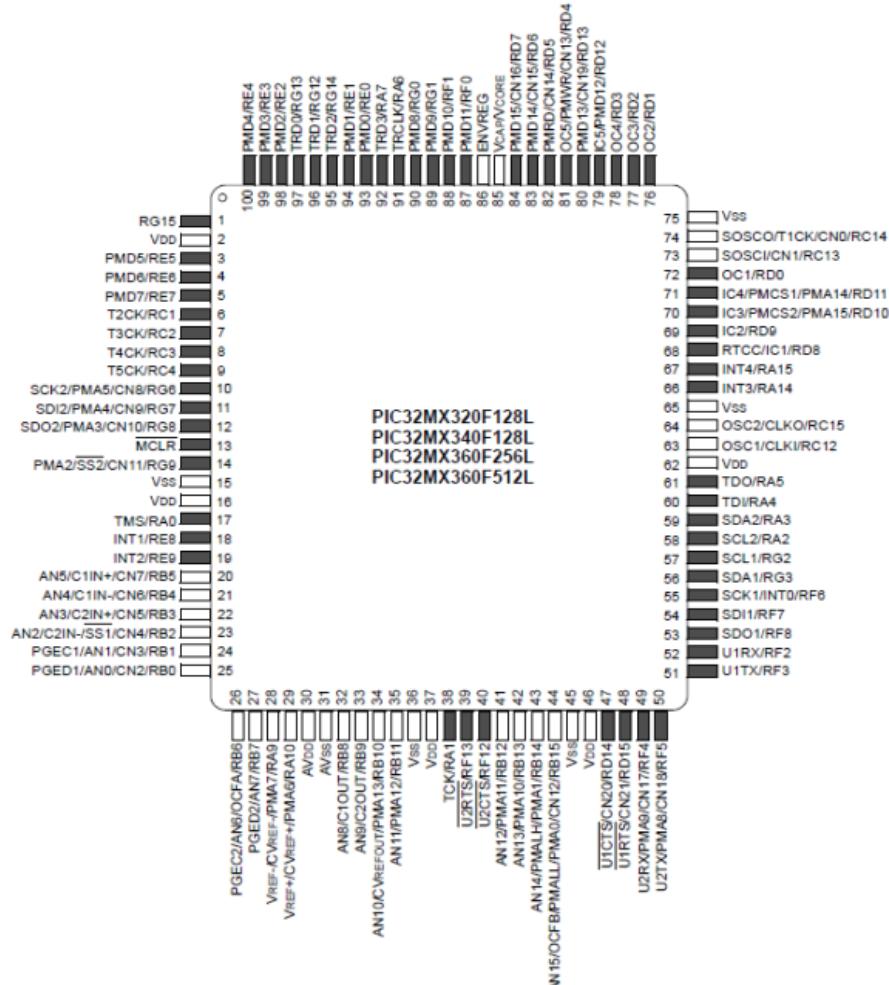
# PIC32MX460F512L Package



# PIC32MX460F512L Package Detail

100-Pin TQFP (General Purpose)

■ = Pins are up to 5V tolerant

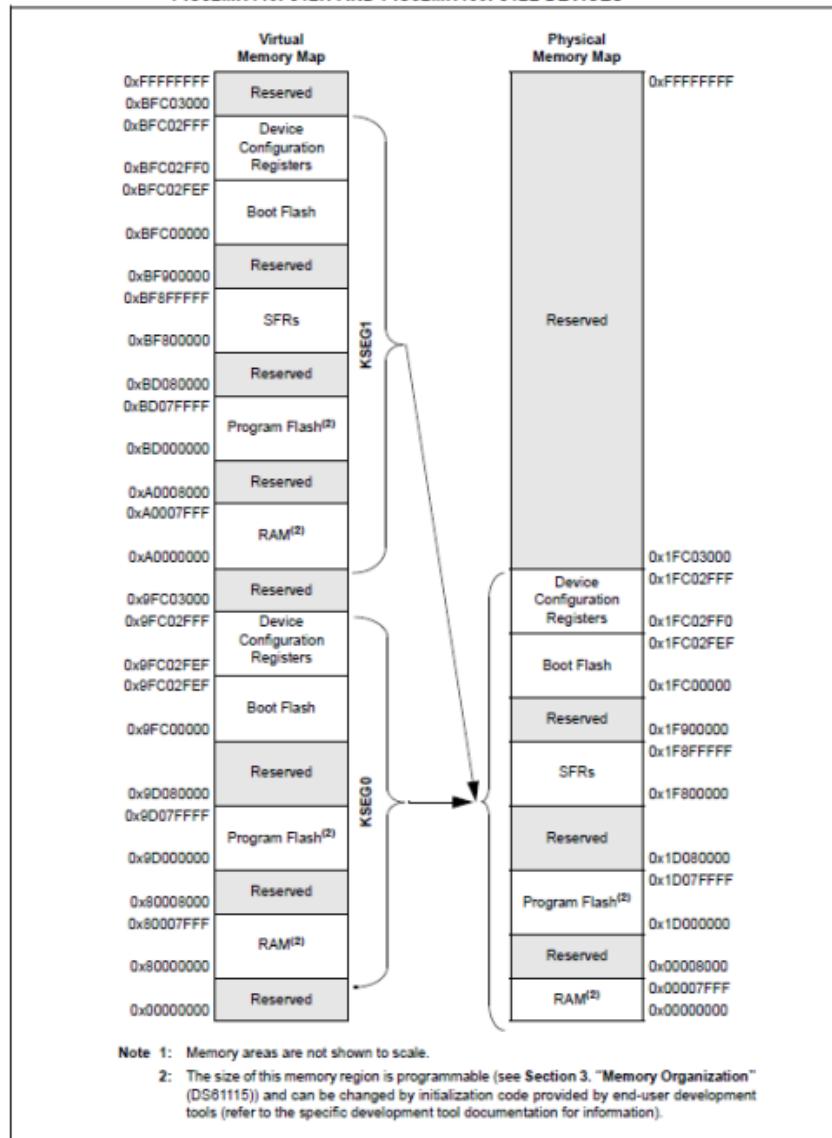


# PIC Memory

- **PIC32MX3XX/4XX microcontrollers implement two address spaces: Virtual and Physical.**
- **All hardware resources such as program memory, data memory and peripherals are located at their respective physical addresses.**
- **Virtual addresses are exclusively used by the CPU to fetch and execute instructions as well as access peripherals.**
- **Physical addresses are used by peripherals such as DMA and Flash controller that access memory independently of CPU.**

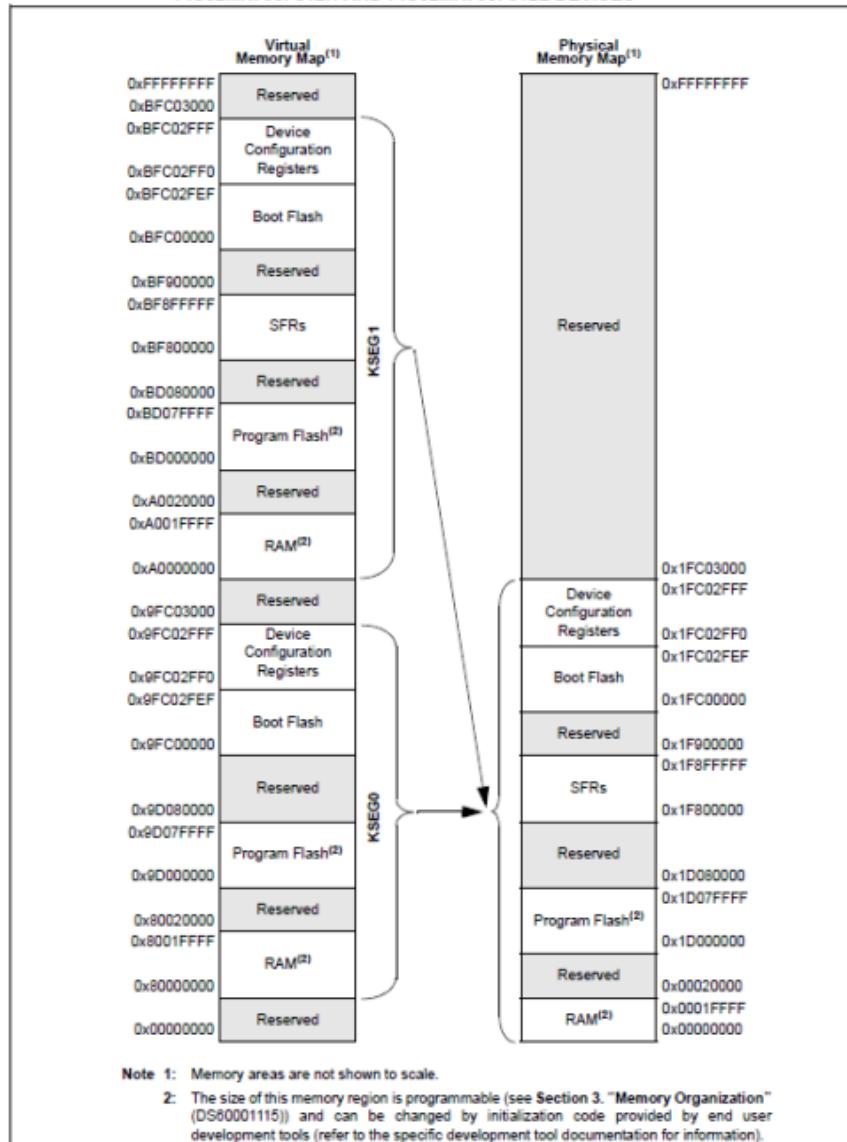
# PIC32MX460F512L Memory Map

FIGURE 4-6: MEMORY MAP ON RESET FOR PIC32MX340F512H, PIC32MX360F512L,  
PIC32MX440F512H AND PIC32MX460F512L DEVICES<sup>(1)</sup>



# PIC32MX795F512L Memory Map

FIGURE 4-6: MEMORY MAP ON RESET FOR PIC32MX695F512H, PIC32MX695F512L,  
PIC32MX795F512H AND PIC32MX795F512L DEVICES



# Virtual Vs. Physical Memory

- **Virtual Memory is used to create the executable program in order to not have to consider how much physical memory is actually resident in the target machine.**
- **Memory mapping is done within the microcontroller to translate virtual addresses to physical addresses.**
- **The physical memory space is allocated to different types of memory (flash, RAM, etc.)**

# PIC Architecture

